RESTRICTED CIRCULATION

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AGRICULTURAL MEMORANDUM NO 624

CEREAL MILDEW; SPRAY TIMING EXPERIMENT - A Comment.

C V SMITH

1. DATA

Figures 1 and 2 are reproduced from the paper by Cock (1974) and show field data for 1973.

Polley High Risk periods were determined by reference to the official returns of meteorological observations at Boxworth and Terrington. In the absence of run of wind data from Boxworth, the reported Mepal winds were used to estimate the occurrence of Polley High Risk days at Boxworth.

C V Smith "Mildew infection days", defined in Ag Mem 355, were determined for Boxworth and Terrington, and also for the adjoining stations in the agro-meteorological network - Mepal and Santon Downham.

2. RESULTS

The Polley recommendation is that the 4th High Risk Period from the beginning of May gives the optimum spray date

For Boxworth	-	Polley spray warning date	27 May 1973
	-	C V Smith Criteria first met	
		at Boxworth	20 May 1973
		at Mepal	27 May 1973
For Terrington	-	Polley spray warning date	2 June 1973
	-	C V Smith Criteria first met	
		at Santon Downham	21 May 1973
		at Terrington	9 June 1973

3. CONCLUSION

If the C V Smith Criteria are employed at a network of stations, then the first day on which the criteria are met anticipates both the sudden surge in spore counts, and the log phase of the mildew on the plant, by a period of time adequate to warn growers that now is the time to spray.

The Polley Criteria do not do this.

REFERENCES

Cock, L.J	1974	Barley Mildew - spray timing experiment Experiments in the Eastern Region
Smith, C.V	1971	Cereal Mildew - weather criteria for infection of the host Agricultural Memorandum No 355

FH1

Fig. 1

Boxworth EHF 1973 Spring barley

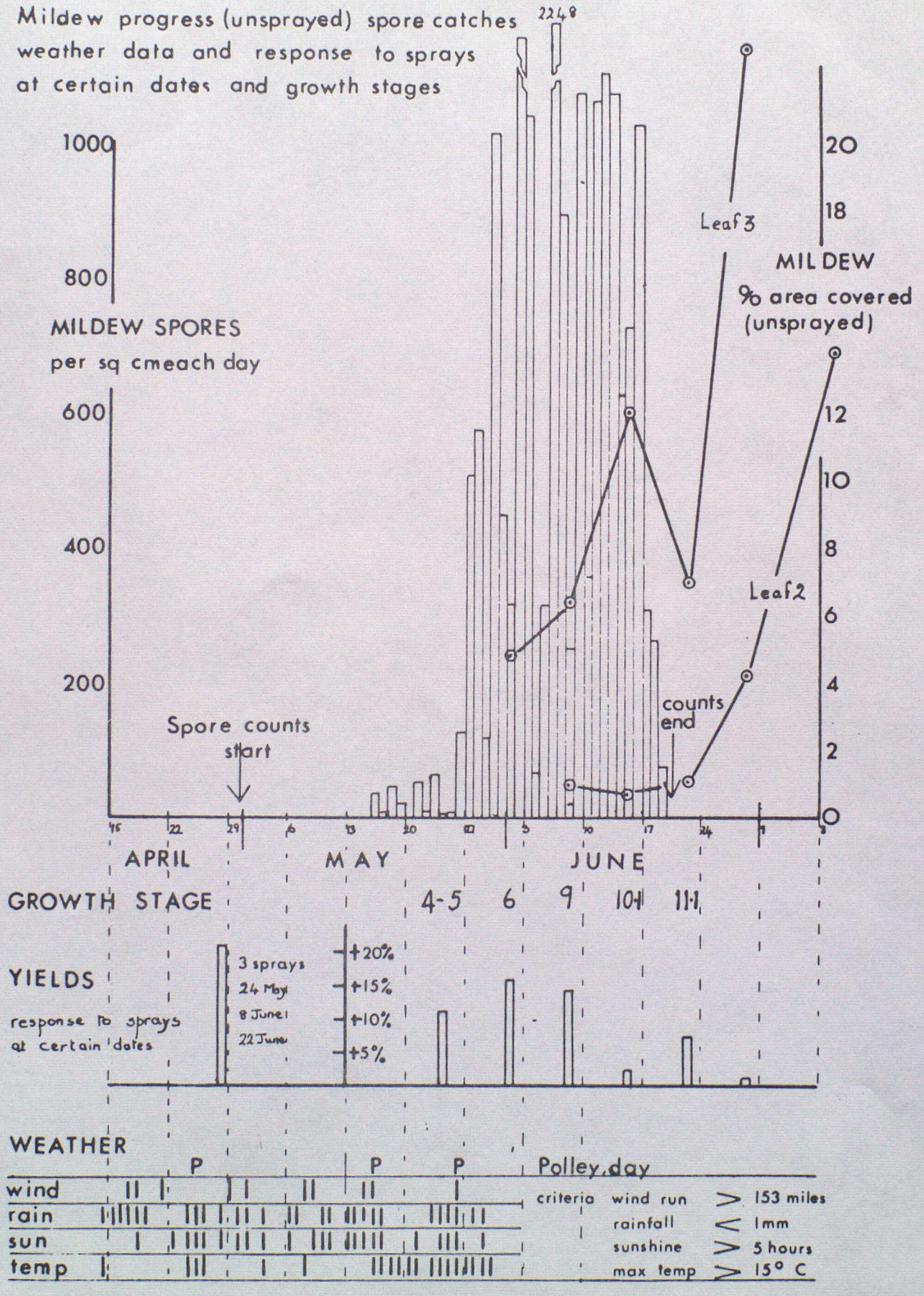
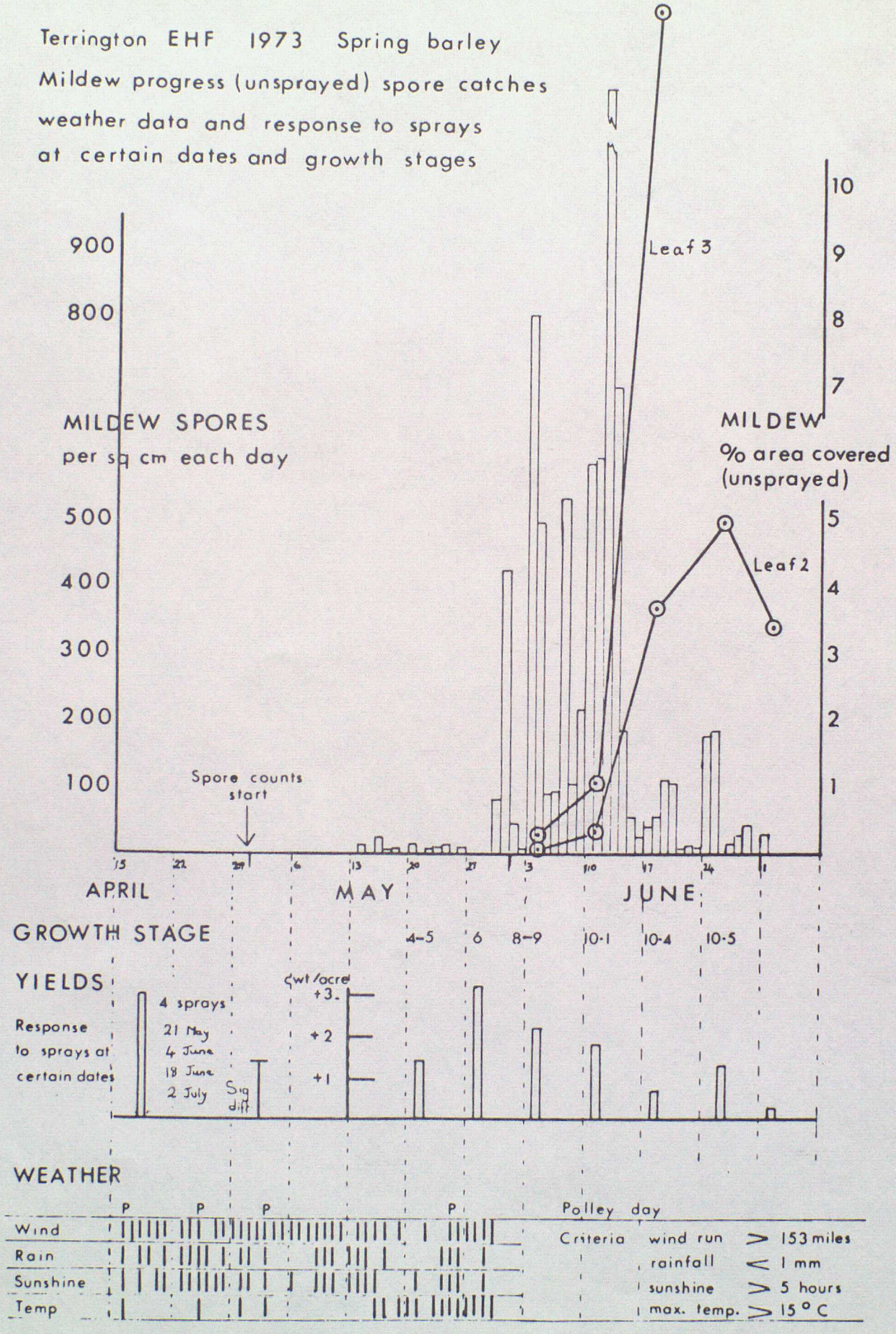


Fig. 2


Terrington EHF 1973 Spring barley
Mildew progress (unsprayed) spore catches
weather data and response to sprays
at certain dates and growth stages
MILDEW SPORES
per sq cm each day
900
800
500
400
300
200
100
MILDEW
% area covered
(unsprayed)
10
9
8
7
5
4
3
2
1
Leaf 3
Leaf 2
Spore counts start
15 22 29 6 13 20 27 3 10 17 24 1
APRIL
MAY
JUNE
GROWTH STAGE
4-5 6 8-9 10-1 10-4 10-5
YIELDS
cwt/acre
+3
+2
+1
4 sprays
21 May
4 June
18 June
2 July
Sig diff
Response to sprays at certain dates
WEATHER
P P P P
Polley day
Wind
Rain
Sunshine
Temp
Criteria
wind run > 153 miles
rainfall < 1 mm
sunshine > 5 hours
max. temp. > 15 °C